

BEST AVAILABLE COPYAmendment Pursuant to 37 C.F.R. § 1.114
Docket No. 013.0226.US.UTLRECEIVED
CENTRAL FAX CENTER

MAR 08 2007

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (currently amended): A system for generating a two-dimensional spatial arrangement of a multi-dimensional cluster rendering, comprising:
 - 3 a concept space to visualize document content that is stored as clusters as
 - 4 multi-dimensional data stored in a memory based on storage to represent concepts
 - 5 and terms extracted terms from a set of documents;
 - 6 a set of the stored clusters selected from the concept space with each
 - 7 selected cluster sharing a common theme comprising one or more of the extracted
 - 8 concepts and terms that are shared; and
 - 9 a placement module to place the set of the stored clusters set into a two-
 - 10 dimensional visual display area of the memory into a grouping, comprising:
 - 11 an anchor point selector submodule to choose one of the selected
 - 12 clusters from the two-dimensional visual display area and to determine an anchor
 - 13 point on the chosen cluster that is located on an open edge of the chosen cluster
 - 14 along a vector defined from a center of the chosen cluster, wherein the vector
 - 15 intersects the anchor point; and
 - 16 a cluster placement submodule to place a center of a further
 - 17 selected cluster outside of the anchor point on the vector and to limit overlap of
 - 18 the chosen cluster and the further selected cluster; and
 - 19 an arrangement submodule to arrange one or more of the
 - 20 remaining selected clusters into an arrangement of clusters that each have a center
 - 21 originating outside of the anchor point and on the vector; and
 - 22 a display and visualization module to display the grouping via a display.
- 1 2. (currently amended): A system according to Claim 1, further comprising:

Amendment Pursuant to 37 C.F.R. § 1.114
Docket No. 013.0226.US.UTL

3 a sort module to sort the selected clusters in each the set of the stored
4 clusters ~~set~~ by cluster size.

1 Claim 3 (canceled).

1 Claim 4 (canceled).

1 5. (previously presented): A system according to Claim 1, further
2 comprising:
3 an angle submodule to define the vector at a normalized angle.

1 Claim 6 (canceled).

1 Claim 7 (canceled).

1 8. (currently amended): A system according to Claim 1, further
2 comprising:
3 a rendering module to render each selected cluster in the two-dimensional
4 visual display area as a circle having an independent radius.

1 9. (previously presented): A system according to Claim 8, wherein
2 each circle has a volume dependent on a number of concepts contained in the
3 selected cluster.

1 10. (previously presented): A system according to Claim 1, further
2 comprising:
3 a rendering module to render each selected cluster as a convex volume,
4 wherein each convex shape represents visualized data for a semantic concept
5 space.

1 11. (previously presented): A system according to Claim 1, wherein
2 the placement module determines a further anchor point located on another open
3 edge of the chosen cluster where a center of a further selected cluster is placed

Amendment Pursuant to 37 C.F.R. § 1.114
Docket No. 013.0226.US.UTL

4 outside the further anchor point on a further vector and limits overlap of the
5 chosen cluster and the further selected cluster, further comprising:

6 a grafting submodule arranging one or more of the remaining selected
7 clusters into an additional arrangement of clusters that each have a center
8 originating outside of the further anchor point and on the further vector.

1 Claim 12 (canceled).

1 Claim 13 (canceled).

1 14. (currently amended): A method for generating a two-dimensional
2 spatial arrangement of a multi-dimensional cluster rendering, comprising:
3 ~~visualizing document content as storing clusters that are stored as multi-~~
4 ~~dimensional data in a memory based on storage to represent concepts and terms~~
5 ~~extracted terms from a set of documents;~~

6 selecting a set of the clusters from the concept space with each selected
7 cluster sharing a common theme comprising one or more of the extracted
8 concepts and terms that are shared; and

9 placing the ~~set of the stored~~ clusters set into a two-dimensional visual
10 display area of the memory into a grouping, comprising:

11 choosing one of the selected clusters from the two-dimensional
12 ~~visual display area~~ and determining an anchor point on the chosen cluster that is
13 located on an open edge of the chosen cluster along a vector defined from a center
14 of the chosen cluster, wherein the vector intersects the anchor point; and

15 placing a center of a further selected cluster outside of the anchor
16 point on the vector and limiting overlap of the chosen cluster and the further
17 selected cluster; and

18 arranging one or more of the remaining selected clusters into an
19 arrangement of clusters that each have a center originating outside of the anchor
20 point and on the vector; and

21 displaying the grouping via a display.

Amendment Pursuant to 37 C.F.R. § 1.114
Docket No. 013.0226.US.UTL

1 15. (currently amended): A method according to Claim 14, further
2 comprising:
3 sorting the selected clusters in each the set of the stored clusters set by
4 cluster size.

1 Claim 16 (canceled).

1 Claim 17 (canceled).

1 18. (previously presented): A method according to Claim 14, further
2 comprising:
3 defining the vector at a normalized angle.

1 Claim 19 (canceled).

1 Claim 20 (canceled).

1 21. (currently amended): A method according to Claim 14, further
2 comprising:
3 rendering each selected cluster in the two-dimensional visual display area
4 as a circle having an independent radius.

1 22. (previously presented): A method according to Claim 21, further
2 comprising:
3 calculating a volume for each circle dependent on a number of concepts
4 contained in the selected cluster.

1 23. (previously presented): A method according to Claim 14, further
2 comprising:
3 rendering each cluster as a convex volume, wherein each convex shape
4 represents visualized data for a semantic concept space.

Amendment Pursuant to 37 C.F.R. § 1.114
Docket No. 013.0226.US.UTL

1 24. (previously presented): A method according to Claim 14, further
2 comprising:

3 determining a further anchor point located on another open edge of the
4 chosen cluster where a center of a further selected cluster is placed outside the
5 further anchor point on a further vector and limiting overlap of the chosen cluster
6 and the further selected cluster; and

7 arranging one or more of the remaining selected clusters into an additional
8 arrangement of clusters that each have a center originating outside of the further
9 anchor point and on the further vector.

1 Claim 25 (canceled).

1 Claim 26 (canceled).

1 27. (previously presented): A computer-readable storage medium
2 storing code for causing a computer to perform the method according to Claims
3 14, 15, 18, 21, 23, and 24.

1 28. (currently amended): A system for arranging concept clusters in
2 thematic relationship in a two-dimensional visual display area, comprising:

3 a stored theme to logically represent one or more concepts based on terms
4 extracted from a document set;

5 a plurality of clusters selected to represent a multi-dimensional
6 visualization space stored as clusters of multi-dimensional data in a memory in a
7 storage, wherein each selected cluster comprises at least one of the concepts in
8 one such theme that is in common with the other selected clusters; and

9 a placement module to place the clusters in a two-dimensional visual
10 display area of the memory into a grouping, comprising:

11 a listing submodule to combine in order each ungrouped cluster
12 from the selected clusters for the shared common theme into a list of placeable
13 clusters;

Amendment Pursuant to 37 C.F.R. § 1.114
Docket No. 013.0226.US.UTL

14 a grouping submodule to add each placeable clusters list into [[a]]
15 the grouping with one or more other placeable clusters lists, wherein the clusters
16 in the other placeable clusters lists each comprise at least one concept in the
17 shared common theme;

18 an anchor submodule to choose a selected cluster from the two-
19 dimensional visual display area and to determine an anchor point on the chosen
20 cluster that is located on an open edge of the chosen cluster along a vector defined
21 from a center of the chosen cluster, wherein the vector intersects the anchor point;
22 and

23 a cluster placement submodule to place a center of a further
24 selected cluster outside of the anchor point on the vector and to limit overlap of
25 the chosen cluster and the further selected cluster; and

26 a grafting submodule to place the center of a selected cluster and to
27 graft the clusters in the remaining placeable clusters lists in the grouping outside
28 the anchor point and along the vector in the two-dimensional visual display area;
29 and

30 a display and visualization module to display the clusters via a display.

1 29. (previously presented): A system according to Claim 28, further
2 comprising:

3 a sort module sorting the clusters in each placeable clusters list in
4 sequence.

1 30. (original): A system according to Claim 29, wherein the sequence
2 comprises a number of documents containing the one or more logically
3 represented concepts.

1 31. (original): A system according to Claim 29, wherein the sequence
2 comprises one of ascending and descending order.

Amendment Pursuant to 37 C.F.R. § 1.114
Docket No. 013.0226.US.UTL

1 32. (original): A system according to Claim 28, wherein each cluster is
2 formed as one of a circular and non-circular convex volume.

1 33. (previously presented): A system according to Claim 28, wherein
2 the vector is defined at normalized angles.

1 Claim 34 (canceled).

1 35. (previously presented): A system according to Claim 28, wherein
2 the shared common theme contains concepts within a pre-specified range of
3 variance.

1 36. (currently amended): A method for arranging concept clusters in
2 thematic relationship in a two-dimensional visual display area, comprising:
3 logically representing one or more concepts based on terms extracted from
4 a document set as a theme;

5 selecting clusters representing a multi-dimensional visualization space
6 stored as clusters of ~~multi-dimensional data in a memory in a storage~~, wherein
7 each selected cluster comprises at least one of the concepts in one such theme that
8 is in common with the other selected clusters; and

9 placing the clusters in a two-dimensional visual display area of the
10 ~~memory into a grouping~~, comprising:

11 combining in order each ungrouped cluster from the selected
12 clusters for the shared common theme into a list of placeable clusters;

13 adding each placeable clusters list into [[a]] ~~the~~ grouping with one
14 or more other placeable clusters lists, wherein the clusters in the other placeable
15 clusters lists each comprise at least one concept in the shared common theme;

16 choosing a selected cluster from the two-dimensional visual
17 display area and determining an anchor point on the chosen cluster that is located
18 on an open edge of the chosen cluster along a vector defined from a center of the
19 chosen cluster, wherein the vector intersects the anchor point; and

Amendment Pursuant to 37 C.F.R. § 1.114
Docket No. 013.0226.US.UTL

20 placing a center of a further selected cluster outside of the anchor
21 point on the vector and limiting overlap of the chosen cluster and the further
22 selected cluster; and
23 placing the center of a selected cluster and grafting the clusters in
24 the remaining placeable clusters lists in the grouping outside the anchor point
25 along the vector ~~in the two-dimensional visual display area; and~~
26 displaying the grouping via a display.

1 37. (previously presented): A method according to Claim 36, further
2 comprising:
3 sorting the clusters in each placeable clusters list in sequence.

1 38. (original): A method according to Claim 37, wherein the sequence
2 comprises a number of documents containing the one or more logically
3 represented concepts.

1 39. (original): A method according to Claim 37, wherein the sequence
2 comprises one of ascending and descending order.

1 40. (original): A method according to Claim 36, further comprising:
2 forming each cluster as one of a circular and non-circular convex volume.

1 41. (previously presented): A method according to Claim 36, further
2 comprising:
3 defining the vector at normalized angles.

1 Claim 42 (canceled).

1 43. (previously presented): A method according to Claim 36, wherein
2 the shared common theme contains concepts within a pre-specified range of
3 variance.

Amendment Pursuant to 37 C.F.R. § 1.114
Docket No. 013.0226.US.UTL

1 44. (previously presented): A computer-readable storage medium
2 storing code for causing a computer to perform the method according to Claims
3 36, 37, 38, 39, 40, 41, and 43.

1 45. (previously presented): A system according to Claim 1, wherein
2 the common theme is defined by selecting the shared extracted terms to have
3 common semantic meanings.

1 46. (currently amended): A system according to Claim 1, wherein at
2 least one additional set of the clusters are selected from the concept space with
3 each selected additional cluster sharing a further common theme comprising one
4 or more of the extracted terms that are shared, wherein the further common theme
5 is different than the common theme; and the at least one additional set of the
6 stored clusters set is placed into the two-dimensional visual display area.

1 47. (currently amended): A system according to Claim 1, wherein at
2 least one additional cluster is selected from the concept space comprising the
3 extracted terms that are unique from each other cluster in the concept space; and
4 the at least one additional cluster is placed into the two-dimensional visual display
5 area.

1 Claim 48 (canceled).

1 49. (previously presented): A method according to Claim 14, further
2 comprising:
3 defining the common theme by selecting the shared extracted terms to
4 have common semantic meanings.

1 50. (currently amended): A method according to Claim 14, further
2 comprising:
3 selecting at least one additional set of the clusters from the concept space
4 with each selected additional cluster sharing a further common theme comprising

Amendment Pursuant to 37 C.F.R. § 1.114
Docket No. 013.0226.US.UTL

5 one or more of the extracted terms that are shared, wherein the further common
6 theme is different than the common theme; and

7 placing the at least one additional set of the stored clusters set into the
8 ~~two-dimensional visual display area.~~

1 51. (currently amended): A method according to Claim 14, further
2 comprising:

3 selecting at least one additional cluster ~~from the concept space~~ comprising
4 the extracted terms that are unique from each other cluster ~~in the concept space~~;
5 and

6 placing the at least one additional cluster ~~into the two-dimensional visual~~
7 ~~display area.~~

1 Claim 52 (canceled).

1 53. (currently amended): A system according to Claim 28, wherein at
2 least one additional set of the clusters is selected, wherein each selected additional
3 cluster comprises one or more of the extracted terms that is in common with the
4 other selected clusters in a further common theme that is different than the shared
5 common theme; and the at least one additional set of the stored clusters set is
6 placed ~~into the two-dimensional visual display area.~~

1 54. (currently amended): A system according to Claim 28, wherein at
2 least one additional cluster is selected that comprises the extracted terms that are
3 unique from each other cluster; and the at least one additional cluster is placed
4 ~~into the two-dimensional visual display area.~~

1 55. (currently amended): A method according to Claim 36, further
2 comprising:

3 selecting at least one additional set of the clusters, wherein each selected
4 additional cluster comprises one or more of the extracted terms that is in common

Amendment Pursuant to 37 C.F.R. § 1.114
Docket No. 013.0226.US.UTL

5 with the other selected clusters in a further common theme that is different than
6 the shared common theme; and

7 placing the at least one additional set of the stored clusters-set into the
8 two-dimensional visual display area.

1 56. (currently amended): A method according to Claim 36, further
2 comprising:

3 selecting at least one additional cluster comprising the extracted terms that
4 are unique from each other cluster; and

5 placing the at least one additional cluster into the two-dimensional visual
6 display area.

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- BLACK BORDERS**
- IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- FADED TEXT OR DRAWING**
- BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- SKEWED/SLANTED IMAGES**
- COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- GRAY SCALE DOCUMENTS**
- LINES OR MARKS ON ORIGINAL DOCUMENT**
- REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.